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Argument to the International Search Opinion

(Informal response to the written opinion of the International Searching Authority)

TO: International Bureau of WIPO

1. Identification of the International Application
   International Application No. : PCT/JP2004/015772
   International Filing Date : October 19, 2004
   Title of the invention : STARTING APPARATUS FOR INTERNAL COMBUSTION ENGINE AND AUTOMOBILE
   Agent's file reference : FNTYA030WO

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Argument

(1) In the Written Opinion of the International Searching Authority, the Examiner has pointed out the lack of novelty and inventive step with regard to the subject matter of claims 1, 3-7 and 9-11 in this application over cited reference D1 through D4. We, however, believe that the subject matter of claims 1, 3-7 and 9-11 in this application is not at all explicitly or even implicitly described in the cited reference D1 through D4, as explained below.

D1:US 2003 0140881
D2:EP 1 233 175 A
D3:JP 2002 061554
D4:FR 2 688 548

(2) Independent claim 1 of this application regards "(A1)a starting apparatus for an internal combustion engine, which is mounted on an automobile to automatically start the internal combustion engine after an auto stop of the internal combustion engine". The starting apparatus includes "(A2)a cranking module that is always connected to an output shaft of the internal combustion engine via a power transmission member and cranks the internal combustion engine through actuation of a rotating shaft, which is interlocked with rotation of the output shaft", "(A3) a reverse rotation presumption module that presumes reverse rotation of the internal combustion engine" and "(A4) a cranking control module that prohibits cranking of the internal combustion engine regardless of fulfillment of an auto start condition, when the reverse rotation presumption module presumes the reverse rotation of the internal combustion engine".

Independent claim 7 of this application regards "(B1)an automobile with an internal combustion engine mounted thereon". The automobile includes "(B2) a cranking module that is always connected to an output shaft of the internal combustion engine via a power transmission member and cranks the internal

combustion engine through actuation of a rotating shaft, which is interlocked with rotation of the output shaft", "(B3) a reverse rotation presumption module that presumes reverse rotation of the internal combustion engine" and "(B4) a cranking control module that prohibits cranking of the internal combustion engine regardless of fulfillment of an auto start condition, when said reverse rotation presumption module presumes the reverse rotation of the internal combustion engine".

(3) In the cited reference D1 and D2, a control apparatus, upon starting of an engine, cranks a crankshaft by means of a starter motor in a reverse direction to a predetermined position, and then cranks the crankshaft in a forward direction. The control apparatus of the cited reference D1 and D2 does not prohibit cranking when the engine rotates reversely. Therefore, the control apparatus of cited reference D1 and D2 does not need to include "(A3) the reverse rotation presumption module" and "(A4) a cranking control module" of claim 1 of this application, and "(B3) a reverse rotation presumption module" and "(B4) a cranking control module" of claim 7 of this application. The cited reference D1 and D2 have neither description nor suggestion about those modules. Accordingly, the subject matter of claim 1 and 7 of this application has sufficient novelty and inventive step over D1 and D2.

(4) Paragraph [0025] in the cited reference D3 teaches "In this embodiment, when the engine rotates in a reverse direction (t3), turn ON operation of the start switch 10 does not drive the starter motor 3." This system is the same as claim 1 and 7 of this application in that the starter motor is not driven when the engine is rotating in a reverse direction. In the cited reference D3, however, the starter switch is manually turned on. Therefore, the cited reference D3 is clearly different from claim 1, which "automatically starts the internal combustion engine after an auto stop of the internal combustion engine",

and also different from claim 7, which cranks the internal combustion engine "through an automatic start of the internal combustion engine". Moreover, claim 1 and 7 of this application aim to solve the problems regarding the automatic start. The cited reference D3, on the other hand, describes a manual start and has no explicit or implicit description about an automatic start. Therefore, the cited reference D3 is different from claim 1 and 7. Accordingly, the subject matter of claim 1 and 7 of this application has sufficient novelty and inventive step over D3. Same argument can be adapted to the cited reference D4.

(5) As described above, we believe that the subject matter of claims 1 and 7 has sufficient novelty and inventive step over the cited references D1 through D4. Any combination of the D1 through D4 cannot anticipate the present invention. Claims 2-6 are dependent from claim 1, and claims 8-11 are dependent from claim 7. The subject matter of claims 2-6 and 8-11 thus has sufficient novelty and inventive step. Accordingly, the subject matter of all the claims has sufficient novelty and inventive step and thus patentable.